

REMARKS

Reconsideration of this Application is respectfully requested.

Upon entry of the foregoing amendments, claims 1-8, 10-34, and 36-54 are pending in the application, with claims 1 and 27 being the independent claims. Claims 9 and 35 have been canceled without prejudice or disclaimer. Support for the subject matter of the amended claims is contained in the application as originally filed. Because the foregoing changes introduce no new matter, their entry is respectfully requested.

Based on the above Amendment and the following Remarks, Applicant respectfully requests that the Examiner reconsider all outstanding objections and rejections and that they be withdrawn.

Description of the Invention

The present invention relates to a search system generating a query vector. The claims have been amended to recite that the query vector includes weights and respective fields for the terms. Assigning weights on the basis of the grammatical structure of the query allows queries such as “glass of wine” to be distinguished from “wine glass” by assigning different weights to the terms “wine” and “glass.” Having a vector with respect to fields for the terms and including the weights in those fields enhances the query processing to obtain an index to data.

Rejections under 35 U.S.C. § 112

The Examiner has rejected claim 1 under 35 U.S.C. § 112, second paragraph as being indefinite. In response, Applicant has amended claim 1 to change “index means responsive to” to “index means for processing” to more clearly indicate that the function performed is processing of the query vector. Claim 27 has been similarly amended in order to more closely parallel the language of claim 1. Applicant respectfully submits that the rejection of claim 1 is overcome by the accompanying amendment thereto.

Rejections under 35 U.S.C. § 103***Claims 1-11, 13, 14, 27-37, 39, and 49***

The Examiner has rejected claims 1-11, 13, 14, 27-37, 39, and 49 under 35 U.S.C. § 103 as being unpatentable over U.S. Patent No. 5,737,734 to Schultz (“Schultz”) in view of U.S. Patent No. 5,325,298 to Gallant (“Gallant”). Schultz and Gallant, taken individually or combined, fail to teach or suggest the query vector and index means of the present invention, as is called for by amended claims 1 and 27.

Schultz fails to disclose or suggest generating a query vector including weights and index means for processing the query vector to output an index in response to the query. Instead, Schultz discloses a method for searching a database in response to a query by adjusting the weight of query words. The query is parsed, as described at column 23, lines 25-31, to determine the part of speech for each term in the query. Column 23, lines 31-45 describe assigning an equal weight to all of the terms in the query, and adjusting the weight for each term by increasing the weight for terms that are proper nouns and decreasing the weight for terms that are slow words. Expansion words are retrieved for other terms in the query to increase the terms used for searching. The weight-adjusted terms and the expansion words are used to retrieve documents stored in the database. As discussed in column 23, lines 8 to 20, the terms of the query have an equal baseline weight when applied to select a document, and the weights are used after a result is obtained to adjust the relevance score for a document.

As such, the Examiner correctly states on page 3 of the Office Action that Schultz does not disclose generating a query vector including weights nor index means responsive to the query vector to output an index in response to the query.

Gallant likewise fails to disclose or suggest generating a query vector including weights and index means for processing the query vector to output an index in response to the query. Gallant instead discloses a method for generating context vectors for storing and retrieving records. As described at column 3, lines 15-45, a context vector is generated for each word in the dictionary, and each record is converted into a summary vector and stored in a database. The

context vector, as described in column 5, is a series of values that represents the extent to which the word relates to a set of descriptive features as shown in Table 1. As described in column 6, lines 41 to column 7, line 9, a summary vector is a query vector. The summary vector has the same fixed length equal to the number of features as the context vectors for each word and is representative of all the texts or words used in the query.

Gallant discloses that weighting can be applied to different words when the summary vector is formed. As described at column 7, lines 20-42, the records may be processed to assign a higher weight to specific grammatical elements, to the first 100 words in the record, or based on the frequency of use of a word in one or more records. As described in column 7, lines 43-61, the context vector for a word is multiplied by the word's weight and then the context vectors added to form the summary vector.

In contrast to the query vector called for by claims 1 and 27, the summary vector of Gallant, similar to the context vectors, has values in respective fields that correspond to the features of the predetermined table rather than the "terms of the query."

It is further noted that Applicant respectfully disagrees with the Examiner's rejection based on the grounds that it would have been obvious to include "a query vector including said weights and output at least one index to data in response to said query in the system of Schultz." As discussed above, the summary vector of Gallant is distinguishable from the query vector called for by claims 1 and 27. Therefore, Schultz, even in combination with Gallant, fails to disclose generating a query vector including weights and index means for processing the query vector to output an index in response to the query.

Applicant also traverses the rejection based on a lack of motivation to combine Schultz with Gallant. The Examiner argues that one skilled in the art would be motivated to combine the summary vector generating means of Gallant with the searching method of Schultz in order to reduce search time. Schultz and Gallant are directed to different goals. Whereas Gallant is directed to reducing search time, Schultz is directed to increasing the relevancy of search results.

Applicant further notes that the feature of using “grammatical structure” to assign weights to terms of said query has been incorporated into amended claims 1 and 27. In rejecting this feature of previous claims 3 and 29 under Schultz in view of Gallant, the Examiner refers to column 24, lines 29-55 of Schultz as disclosing a query based on the grammatical structure of the query. Applicant respectfully disagrees. Column 24, lines 29-55 refers to the determination of the probability that a word in the query represents a particular part of speech. These probabilities appear to be used, as discussed in column 24, lines 56 to column 25, line 7, to determine a sentence fragment of the query that can be applied to a search engine. Schultz does not disclose or suggest adjusting weights on the basis of the grammatical structure of the query as called for by claims 1 and 27. Schultz refers to assigning weights based on specific grammatical components, i.e., whether a term is a noun or a slow word, but these weights are not used in the query. Likewise, Gallant also fails to suggest adjusting weights on the basis of the grammatical structure of the query as called for by amended claims 1 and 27.

For at least these reasons, Applicant respectfully submits that Schultz and Gallant, taken individually or combined, do not render obvious independent claims 1 and 27. Applicant submits that claims 2-11, 13, 14, 28-37, 39, and 49, which depend from claims 1 and 27, are allowable over the cited art for at least the same reasons noted above.

Claims 12, 15-26, 38, and 41-54

The Examiner has rejected dependent claims 12, 15-26, 38, and 41-54 under 35 U.S.C. § 103 as being unpatentable over Schultz in view of U.S. Patent No. 6,081,774 to Hita (“Hita”). The arguments asserted above with respect to Schultz are further reasserted herein.

Hita likewise fails to disclose or suggest a query vector including weights and index means for processing the query vector to output an index in response to the query. Hita instead discloses an information retrieval system that generates content-based query keywords derived from a natural language query (see column 2, lines 43-52). A query builder, as shown in Figure 4, analyses the natural language query following the steps described at columns 37 and 38. The query builder generates a topic tree, as shown in Figure 13, based on words from the query (see

columns 13 and 14). As described in column 37, lines 58-67, the query builder generates all possible combinations of topics and inserts boolean, order, and proximity operators in each combination. As described at column 38, lines 32-44, the query builder assigns a weight to a query terms based on qualities of the terms themselves and determines a weight for each query combination by adding the weights for individual query terms in the combination. The query builder then generates a keyword index as shown in Table 3 in column 38 for searching the database. Hita fails to disclose or suggest generating a query vector or assigning weights to terms on the basis of the grammatical structure of the query as called for by the claims.

For at least these reasons, Applicant respectfully submits that Schultz and Hita, taken individually or combined, do not render obvious independent claims 1 and 27. Applicant submits that claims 12, 15-26, 38, and 41-54, which depend from claims 1 and 27, are allowable over the cited art for at least the same reasons noted above.

CONCLUSION

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicant believes that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided below.

The Commissioner is hereby authorized to charge any underpayment of fees associated with this communication, including any necessary fees for extension of time or additional claims, and/or credit any overpayment to Deposit Account No. 50-2319 (Order No. 461124-00022; Docket No. A-71259/DJB/VEJ/RBE).

PATENT

Attorney Docket No. A-71259/DJB/VEJ/RBE
Attorney Matter No. 461124-00022
Application No. 10/030,331

Prompt and favorable consideration of this Amendment and Response is respectfully requested.

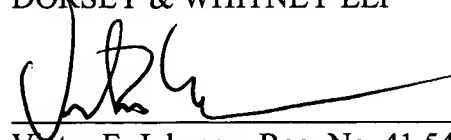
Respectfully submitted,

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5/2/2006

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